## PATENT CLAIMS

1. Equilenin derivatives of general formula I

$$R_2$$
  $R_5$   $C$   $R_4$   $R_4$   $R_4$   $R_3$   $R_1$   $R_2$   $R_3$   $R_4$   $R_4$   $R_3$   $R_4$ 

wherein

 $R_1$  denotes a hydrogen atom, a  $C_1$ - $C_6$ -alkyl group, a  $C_1$ - $C_6$ -acyl group or a benzoyl group,  $R_2$  denotes a hydrogen atom and  $R_2$ ' denotes a hydrogen atom, a fluorine atom, a hydroxyl group or a  $C_1$ - $C_6$ -acyloxy group or  $R_2$  and  $R_2$ ' together denote an oxo group,

R<sub>3</sub> denotes a hydrogen atom or a methyl group,

 $R_4$  denotes a hydrogen atom and  $R_4$ ' denotes a hydroxyl group or a  $C_1$ - $C_{11}$ -acyloxy group or  $R_4$  and  $R_4$ ' together denote an oxo group, a methylene group, a halomethylene group or a dihalomethylene group and

 $R_{\rm b}$  denotes a hydrogen atom or a methyl group.

- 2. Equilenin derivatives according to Claim 1, characterized in that  $R_{\delta}$  is a hydrogen atom.
- 3. Equilenin derivatives according to Claim 1, namely
  - 1)  $14\alpha$ ,  $15\alpha$ -methylenestra-1, 3, 5(10), 6, 8-pentaene-3,  $11\beta$ ,  $17\beta$ -triol,
  - 11 $\beta$ ,17 $\beta$ -dihydroxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaen-3-yl benzoate,
  - 3)  $11\beta$ ,  $17\beta$ -dihydroxy- $14\alpha$ ,  $15\alpha$ -methylenestra-1, 3, 5(10), 6, 8-pentaen-3-yl propionate,
  - 4)  $3,11\beta$ -dihydroxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaen-17 $\beta$ -yl decanoate,
  - 3,11 $\beta$ -dihydroxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaen-17-one,
  - 3-methoxy-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaen-11 $\alpha$ ,17 $\beta$ -diyl diacetate,
  - 7)  $15\beta$ -methyl- $14\alpha$ ,  $15\alpha$ -methylenestra-1, 3, 5(10), 6, 8-pentaene-3,  $11\beta$ ,  $17\beta$ -triol,
  - 8)  $11\beta$ -fluoro-14a, 15a-methylenestra-1, 3, 5(10), 6, 8-pentaene-3,  $17\beta$ -diol,
  - 9)  $3,17\beta$ -dihydroxy-14 $\alpha$ ,15 $\alpha$ -methylene-1,3,5(10),6,8-pentaen-11-one,
  - 3-methoxy-14a,15a-methylenestra-1,3,5(10),6,8-pentaen-11a,17a-diyl diacetate,
  - 3-methoxy-14 $\alpha$ ,15 $\alpha$ -methylene-11-oxoestra-1,3,5(10),6,8-pentaen-17 $\alpha$ -yl acetate,
  - 11)  $11\beta$ -hydroxy-17,17-difluoromethylene-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10),6,8-pentaen-3-yl benzoate, and
  - 13)  $14\alpha,15\alpha-17,17$ -bis-methylenestra-1,3,5(10),6,8-pentaene-3,11 $\alpha$ -diol.

4. Method for producing equilenin derivatives of the invention of general formula I

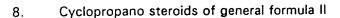
$$R_2$$
  $R_5$   $CH_2$   $R_4$   $R_4$   $R_4$   $R_5$   $R_7$   $R_7$   $R_8$   $R_8$   $R_1$   $R_9$   $R_9$   $R_9$   $R_9$ 

wherein  $R_1$ ,  $R_2$ ,  $R_2$ ,  $R_3$ ,  $R_4$ ,  $R_4$  and  $R_6$  have the meaning indicated in Claim 1, by subjecting a compound of general formula II

$$R_2$$
  $R_5$   $C$   $R_4$   $R_4$   $R_4$   $R_2$   $R_3$   $R_1$   $R_4$   $R_4$   $R_4$   $R_4$   $R_5$   $R_4$   $R_4$   $R_4$   $R_5$   $R_5$   $R_4$   $R_4$   $R_4$   $R_5$   $R_5$   $R_5$   $R_4$   $R_4$   $R_5$   $R_5$ 

wherein  $R_1$ ,  $R_2$ ,  $R_2$ ,  $R_3$ ,  $R_4$ ,  $R_4$  and  $R_6$  have the meaning indicated in Claim 1, to reaction with diphosphorus tetraiodide in the presence of pyridine and then converting the compound thus obtained to a compound of general formula I in a manner that in itself is known.

- 5. Pharmaceutical composition containing at least one compound of general formula I according to Claims 1 to 3, optionally together with pharmaceutically compatible auxiliary agents and carriers.
- 6. Use of the compounds of general formula I according to Claims 1 to 3 for geroprophylaxis in men and women.
- 7. Compounds of general formula I according to Claims 1 to 3 for use as therapeutically active substances.



$$R_2$$
  $R_5$   $C$   $R_4$   $R_4$   $R_4$   $R_2$   $R_3$   $R_4$   $R_5$   $R_4$   $R_5$   $R_5$ 

wherein R<sub>1</sub>, R<sub>2</sub>, R<sub>2</sub>', R<sub>3</sub>, R<sub>4</sub>, R<sub>4</sub>' and R<sub>5</sub> have the meaning indicated in Claim 1

## 9. Cyclopropano steroids according to Claim 8, namely

- 3-methoxy-14 $\alpha$ ,15 $\alpha$ -methylene-8 $\alpha$ ,9 $\alpha$ -oxidoestra-1,3,5(10)-trien-17 $\alpha$ -ol,
- 3-methoxy-14 $\alpha$ ,15 $\alpha$ -methylene-8 $\alpha$ ,9 $\alpha$ -oxidoestra-1,3,5(10)-trien-17 $\alpha$ -yl acetate,
- 3) 3-methoxy-14 $\alpha$ ,15 $\alpha$ -methylene-8 $\alpha$ ,9 $\alpha$ -oxido-18 $\alpha$ -homoestra-1,3,5(10)-trien-17 $\alpha$ -yl propionate,
- 4)  $14\alpha,15\alpha$ -methylene- $8\alpha,9\alpha$ -oxidoestra-1,3,5(10)-trien- $3,17\alpha$ -diyl diacetate,
- 3-methoxy-15 $\beta$ -methyl-14 $\alpha$ ,15 $\alpha$ -methylene-8 $\alpha$ ,9 $\alpha$ -oxidoestra-1,3,5(10)-trien-17 $\beta$ -ol,
- 6)  $11\alpha$ -hydroxy-3-methoxy- $14\alpha$ ,  $15\alpha$ -methylene- $8\alpha$ ,  $9\alpha$ -oxidoestra-1, 3, 5(10)-trien- $17\alpha$ -yl acetate,
- 3-methoxy-14 $\alpha$ ,15 $\alpha$ -methylene-8 $\alpha$ ,9 $\alpha$ -oxidoestra-1,3,5(10)-trien-11 $\alpha$ ,17 $\alpha$ -divdiacetate and
- 8) 3-methoxy-11 $\alpha$ -hydroxy-8 $\alpha$ ,9 $\alpha$ -oxido-14 $\alpha$ ,15 $\alpha$ -methylenestra-1,3,5(10)-trien-17 $\beta$ -yl acetate.